REMARKS

In the Office Action, claims 1-7, 9-13, 15-19, 22-33 and 35-42 were rejected and claims 8, 14, 20-21 and 34 were objected to. By the present Response, claim 13 is amended. Upon entry of the amendments, claims 1-42 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Claim Objections

Claim 13 was objected for containing a misspelled word. By the present response, claim 13 has been amended to correct the informality.

Rejections Under Double Patenting

Claims 24, 30 and 36 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9 and 15 of Rebello et al. U.S. Patent No. 6,856,842. A terminal disclaimer to terminally disclaim the present application with respect to Rebello is being filed with this Response.

Rejections Under 35 U.S.C. § 102

The Office Action summarizes claims 1-3 and 5-7, 9-13, 15-19, 22-33 and 35-42 as rejected under 35 U.S.C. §102(b) as being anticipated by Sebastian et al. (U.S. Patent No. 5,822,206; hereinafter "Sebastian"). Rejected claims 1, 24 and 36 are independent and will be discussed in detail below.

Sebastian does not teach generating a parametric master model for a part from an *editable geometry.*

Claim 1 recites a method of re-engineering a part. The method includes generating a parametric master model for the part *from an editable geometry for the part.* The method also includes generating a manufacturing context model from a design master model, the design master model comprising the parametric master model and the manufacturing context model comprising a plurality of tooling features. Further, the

method includes creating a tooling master model from the manufacturing context model, the tooling master model comprising a tooling geometry for the part.

Claim 24 recites a system for re-engineering a part. The system includes a part design master model module configured to generate a parametric master model for the part *from an editable geometry for the part* and a tooling master model module configured to receive the parametric master model, to generate a manufacturing context model from the parametric master model, and to create a tooling master model from the manufacturing context model. Further, the manufacturing context model comprises a plurality of tooling features and the tooling master model comprises a tooling geometry.

Claim 36 recites a method of manufacturing. The method includes generating a parametric master model for a part *from an editable geometry for the part* and generating a manufacturing context model from the parametric master model, the manufacturing context model comprising a plurality of tooling features. The method also includes creating a tooling master model from the manufacturing context model, the tooling master model comprising a tooling geometry for the part and generating a hard tooling using the tooling master model. The method further includes manufacturing at least one part using the hard tooling and a plurality of process parameters.

Applicants submit that the invention uses an editable geometry to generate the parametric model for a part as recited in the specification (*See* Application, paragraph 20 and FIG. 3). In the described embodiment, the parametric master model is generated from the editable geometry in a computer aided design (CAD) system. An exemplary editable geometry is an editable non-parametric CAD model generated using the CAD system. Further, the parametric model generated from the editable geometry is a representation of the part, the geometry of which is described in terms of features, such as holes, lines, curves, chamfers, blends, radii, well defined shapes, user defined shapes, and parameters associated with and between these features. Consequently, the parametric

master model can be altered simply by changing the value of one or more of the parameters. Moreover, because the model is parametric, the method applies to an entire part family.

The generation of parametric master model includes identifying and extracting a number of critical parameters from the editable geometry. *See id.* paragraph 33 and FIG. 3. For example, when the technique is employed to reverse engineer a part, the extraction of parameters includes determining the existing values of these parameters. Alternatively, when the technique is employed to reengineer, part extraction includes both determining of the existing values of critical parameters and applying engineering knowledge to improve the existing values obtained from the editable geometry.

Further, the editable geometry may be generated by obtaining data characterizing the part or from legacy design information. Data acquisition is typically performed by measuring the part, or by using an existing data set characterizing the part. *See id.*, paragraph 26.

The Examiner argued that Sebastian discloses generation of a parametric master model from an editable geometry and that the "Detailed Part Design" of Sebastian corresponds to a parametric model. The Examiner cited figures 1, 3 and 6 and the associated text in support of the rejection.

The cited passages from Sebastian do not support the Examiner's position, however. Sebastian does not, in these passages or when considered as a whole, fairly suggest generating the parametric model from an editable geometry. As can be seen from the cited passages, Sebastian teaches determining customer requirements for preliminary part design. Once the sketch is approved a detailed part design is developed. Typically, for the preliminary and the detailed part design, parts are conceived for form and function

only and are designed with the assumption of uniformly distributed properties. *See* Sebastian, column 4, lines 40-63.

Applicants respectfully submit that Sebastian does not teach generation of the parametric model from an editable geometry. Furthermore, Sebastian does not disclose generation of the editable geometry from acquired data.

Sebastian does not teach generating a manufacturing context model from the parametric master model.

Applicants submit that claims 1, 24 and 36 recite, in generally similar language, generation of the manufacturing context model from a design master model. The design master model includes the parametric master model having a plurality of tooling features. The manufacturing context model prescribes the end result of each of the manufacturing steps. Further, the manufacturing context model has an *associative relationship* with the underlying parametric model such that when a parameter value is changed in the underlying parametric model, the context model is automatically updated to reflect this change.

The Examiner argued that Sebastian discloses generation of a manufacturing context model and that the "Prototype Tool Design" corresponds to a manufacturing context model. The Examiner cited figures 1, 3 and 6 and the associated text in support of the rejection.

The passages cited by the Examiner fail to relate in any way to a manufacturing context model described above. As can be seen from the cited passages, Sebastian teaches development of a prototype tool design based upon an approved drawing of the detailed part design. A CAD system and a mold-filling analysis can be used to produce a detailed tool drawing. Further, the prototype tool and the detailed process design are used in prototype trials of the part. If these trials meet with approval, then a detailed tool

design is made. *See* Sebastian, column 16, lines 5-15. Applicants respectfully submit that Sebastian does not disclose a manufacturing context model.

Absent any teaching regarding these recitations of claims 1, 24 and 36 regarding generation of parametric model by an editable geometry and generation of the manufacturing context model from the parametric master model, Sebastian simply cannot anticipate these claims. Therefore, Applicants submit that independent claims 1, 24 and 36 are allowable and respectfully request the Examiner to reconsider rejection of the claims.

With regard to dependent claims 2-3, 5-7, 9-13, 15-19, 22-23, 25-33, 35 and 37-42, these claims depend directly or indirectly from allowable claims 1, 24 and 36, and are therefore considered to be allowable at least by virtue of their dependency from an allowable base claim.

Rejections Under 35 U.S.C. § 103

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sebastian, in view of Pang et al. (U.S. 6,578,188). Claim 4 is believed to be patentable as it depends from allowable independent claim 1. Furthermore, it is respectfully submitted that Sebastian does not teach the subject matter claimed by the Applicants, and the secondary reference does not obviate the deficiencies of Sebastian.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: 12/6/2005

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